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Hobbes's War of All against All*

Gregory S. Kavka

It is surprising that, in the voluminous literature on Hobbes, his most original and important argument rarely receives detailed examination. I refer to the argument, centered in chapter 13 of *Leviathan*, that the state of nature is a state of war of all against all.¹ There seem to be two main reasons why this argument escapes careful scrutiny. Some apparently regard it as so straightforward, and so obviously correct, as to require little analysis or elucidation.² Others, who accept the common view that the argument is dependent on Hobbes's egoistic psychology,³ may doubt it is of substantial interest for those of us not sharing this gloomy view of human nature. I shall argue that these attitudes are not warranted. Hobbes's argument relies only on assumptions about human beings that are much more plausible than psychological egoism, but it is invalid. Yet, despite its invalidity, it makes a significant and lasting contribution to our understanding of certain important problems concerning human interaction.

I shall proceed as follows. After sketching what I take Hobbes's argument to be, I consider and reject a prominent alternative interpretation, that offered by F. S. McNeilly in his fine book *The Anatomy of Leviathan*.⁴

* Earlier versions of this paper were presented at the University of California, Irvine, and the Hobbes Tercentenary Congress at the University of Colorado in 1979. I am grateful to members of both audiences (especially Daniel Lyons, my commentator at the congress), and to a referee for *Ethics* for helpful comments.

1. Earlier (but significantly different) versions of the argument appear in *Elements of Law* and *De Cive*. I here consider only the *Leviathan* version. References to *Leviathan* (originally published in 1651) are to Sir William Molesworth, ed., *The English Works of Thomas Hobbes* (London: John Bohn, 1839), vol. 3 (hereafter cited as *Leviathan*).

2. See, e.g., David Gauthier, *The Logic of Leviathan* (Oxford: Oxford University Press, 1969), pp. 14–18; Richard Peters, *Hobbes* (Harmondsworth: Penguin Books, 1956), pp. 168–72; and D. D. Raphael, *Hobbes* (London: George Allen & Unwin Publishers, 1977), pp. 30–31.

3. The view that the argument rests on egoistic premises may be found, e.g., in Leslie Stephen, *Hobbes* (Ann Arbor: University of Michigan Press, 1961), pp. 136–42, 182–84; and C. B. Macpherson, *The Political Theory of Possessive Individualism* (Oxford: Oxford University Press, 1962), pp. 32–33, 67–69.

4. F. S. McNeilly, *The Anatomy of Leviathan* (London: Macmillan Publishers, 1968).

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Then, a crucial objection to Hobbes's argument is raised, based on the possibility of parties in the state of nature forming defensive coalitions. The most promising line of response to this objection is an argument, in the spirit of Hobbes, that resembles the well-known Hangman Paradox.⁵ After developing this argument, I explain why it ultimately fails to vindicate Hobbes. Next, I consider the question of whether Hobbes's argument can be extended to cover relations among groups. This leads to the uncovering of a significant error in his view about how security can best be achieved, and to a reinterpretation of his argument that is more defensible, but less ambitious, than the original. I conclude by pointing out two important insights that Hobbes's argument contains.

I. THE ARGUMENT

Hobbes argues that people living in a state of nature, without a common power over them to keep them in awe, are in a state of war of every person against every other. He defines war not in terms of actual fighting, but as a known willingness to fight.⁶ So a war of all against all is a state in which each knows that every other is willing to fight him, not one in which each is constantly fighting. But it is more than *just* this, for Hobbes contends that, in the state of war, there is so little security of life and property, that all live in constant fear and productive work is pointless.⁷ (And he uses this contention as the ground of a favorable comparison of absolute sovereignty with the state of nature.)⁸ But, because people learn by experience, a state of known universal willingness to fight would not long leave its inhabitants feeling so insecure unless acts of violence, coercion, and theft actually occurred with some frequency. Hence, the real conclusion that Hobbes draws (and needs) is that the state of nature is a state of war of all against all, punctuated by frequent violence, in which the participants correctly perceive themselves to be in constant danger. In the sequel, I abbreviate this by the simple phrase "the state of nature is a state of war."

To prove the state of nature is a state of war, Hobbes begins with five assumptions. (The last two are not stated explicitly in the presentation of the argument, but clearly are presupposed.)

1. *Natural equality*.—People are roughly equal in their mental and physical powers. Two aspects of this equality are of special importance. First, as relatively brittle organisms, each of us may be destroyed by practically any of the rest of us. The weaker among us are not so weak as to prevent their killing the very strongest using stealth or weight of numbers.⁹ Second, the differences in people's natural powers are not so

5. See, e.g., W. V. Quine, "On a So-called Paradox," *Mind* 62 (1953): 65–67.

6. *Leviathan*, chap. 13, pp. 112–13.

7. *Ibid.*, p. 113.

8. See Sec. II below.

9. *Leviathan*, pp. 110–11.

great as to make one an obvious loser to another should they come into conflict.¹⁰

2. *Conflicting desires*.—The desires of different people are frequently at odds. The supply of many commodities is not large enough to satisfy the desires of all who want them. Often two people will want to exclusively possess the same particular object, for example, a spouse or parcel of land.¹¹ Further, some are glory seekers who take pleasure in conquering others.¹² Their objectives are bound to clash with those of the people they seek to dominate.

3. *Forward-lookers*.—People, if they are at least minimally rational, are concerned with their long-term well-being. They care about the satisfaction of their future, as well as present, desires, and strongly desire to prolong their lives.¹³

4. *Advantage of anticipation*.—In cases of conflict between persons, anticipation generally improves one's chances of success. "Anticipation" means either striking first or gathering power so that one will be in a stronger relative position when the battle eventually erupts. Since the primary means of gathering power that Hobbes discusses is conquering others so as to put *their* power at *your* disposal, it is clear that anticipation generally involves the use (or threat) of force.¹⁴

5. *Limited altruism*.—Individuals value their own survival and well-being much more highly than the survival and well-being of others,¹⁵ and act accordingly. Hence, if a person believes a certain course of action best promotes his own security, he is very likely to undertake it, even if it jeopardizes the survival or well-being of others.

From these five quite reasonable and realistic assumptions about human beings, Hobbes constructs an elegant and insightful argument for the state of nature being a state of war. Imagine people in a state of nature, in which there is no common power over them to punish them for robbing, assaulting, and killing one another. As forward-looking creatures vulnerable to death at the hands of virtually any of their fellows,

10. Ibid., p. 111. Cf. chap. 14, p. 129: "... In the condition of mere nature the inequality of power is not discerned but by the event of battle."

11. Ibid., chap. 13, p. 111.

12. Ibid., pp. 111–12.

13. Ibid., chap. 11, p. 85.

14. Ibid., chap. 13, pp. 111–12. Hobbes speaks here of mastering people by "wiles" as well as by force, but in his later discussion of conquest (chap. 20), the only method of gaining dominion over another that he mentions (besides parenthood and the original covenant) is the threat of force. Perhaps he is imagining that wiles are used to get another in a position in which a promise of obedience can be obtained by threats of force. Or it may be that he considers wiles a method of attaining mastery over others that is practiced in the "attenuated" state of nature, i.e., under a government of limited power. On this last point, see Sec. II below.

15. Loved ones, generally close relatives, may constitute a class of exceptions. Taking account of this would, at most, require recasting the argument in terms of relations among small family groups, rather than between individuals. Cf. Sec. V below.

they will rightly be quite concerned about their future security. Lacking a system of law enforcement, they cannot expect potential attackers to be effectively deterred by fear of counterviolence. For due to the rough equality of people's natural powers, and the advantages of striking first, potential attackers will realize that they have a good chance of success.¹⁶ Nor can one expect potential attackers—whose altruism is, at most, limited—to refrain from attack out of concern for their potential victims. Thus, each person in the state of nature must fear violence by others who may attack for any of three reasons.¹⁷ First, glory seekers may attack simply because they enjoy conquest. Second, competitors may attack to remove one as an obstacle to the satisfaction of their desires. Third, and most important, even “moderate” people, who have no desire for power or glory for its own sake and who may have no specific quarrels with one, may, for defensive purposes, engage in *anticipatory* violence against one.¹⁸ That is, they may attack to remove one as a potential future threat to themselves, or to conquer one to use one's power to deter or defend against future attacks by others. In these circumstances, eventual involvement in violent conflict is not unlikely. And since anticipation generally improves one's chances of success, it is the most reasonable course of action for rational persons caring about their future well-being (and caring much less, if at all, about the well-being of others) to follow. In Hobbes's words, “. . . there is no way for any man to secure himself, so reasonable, as anticipation.”¹⁹

At this point, there is a gap in the argument that we must fill in for Hobbes. For a universal state of war to exist, it is not enough that anticipation be the most reasonable strategy, it must also be *believed* so by all who do not wish to fight for other reasons, and most must be aware that others so believe it. For only then is it guaranteed that “. . . the will [of each] to contend by battle is sufficiently known.”²⁰ The gap may be filled in by supposing that each person in the state of nature is aware, perhaps subconsciously and in rudimentary form, of the logic of the argument to this point, and correctly assumes that others will reason similarly and reach the same conclusion about anticipation.²¹ And once we establish the existence of a known universal willingness to fight by this general line of argument, the rest of our conclusion—the frequent occurrence of violence and subsequent high degree of insecurity—is assured. For unless nearly all are too inhibited to carry out the hard dictates of reason

16. Hobbes does not mention it, but to the extent that people overestimate their power (i.e., are “vainglorious” in his sense), they will overestimate their chances of success and will be more likely to attack.

17. *Leviathan*, chap. 13, pp. 111–12.

18. *Ibid.*, p. 112, and chap. 11, p. 86.

19. *Ibid.*, chap. 13, p. 111.

20. *Ibid.*, p. 113.

21. Weaker assumptions than this would suffice. These would take account of the possibility that some people will infer that others are enemies in some other way, e.g., by generalizing from the hostile behavior of those with whom they come into contact.

in these circumstances, there would be much violence undertaken by defensive anticipators, in addition to whatever glory seeking or competitive fighting might take place. Thus, a state of nature is a condition in which the will of each to fight others is known, fighting is not infrequent, and each correctly perceives that his life and well-being are in constant danger.

II. AN ALTERNATIVE INTERPRETATION

Before subjecting the above interpretation of Hobbes's argument to critical scrutiny, it will be useful to offer reasons for rejecting F. S. McNeilly's interpretation. For if the conclusions of McNeilly's extensive recent discussion of the argument were correct, the main criticism I shall offer against Hobbes would be misguided and beside the point.

McNeilly believes that Hobbes employs the method of mathematics in his political philosophy.²² He thus constructs an interpretation of the state of war argument as a logical deduction from formal definitions.²³ On his view, what the argument shows is that it is a *necessary truth* that human beings not living under a common power (i.e., living in a state of nature) will be in a state of war that constitutes a state of *despair* in Hobbes's sense: a state in which they have no hope of attaining their objectives.²⁴

The keystone of McNeilly's interpretation is the extremely wide conception of what constitutes a common power that is expressed in the following passage: "In order that a society should be describable as having no 'common power' it would have to be positively committed to abstaining from *any* sort of action which could bring any substantial evil on the head of offenders."²⁵ In other words, a group is out of the state of nature and governed by a common power as soon as it threatens to impose any sort of significant penalties on misbehaving members.²⁶ McNeilly combines this with the view that it is necessarily true that any group whose members' behavior is controllable without the threat of penalties is not a group of *human* beings. The reason he offers for regarding this as a necessary truth is that a group whose behavior was controllable without threat of penalties would have to be so homogenous (in their fundamental values) that it would not fit our concept of a human society, nor would its members fit our concept of human beings.²⁷ From this purported necessary

22. McNeilly, pp. 89–91.

23. Ibid., pp. 180–91. While I criticize this interpretation, I largely agree with McNeilly's earlier discussion of the state of nature (pp. 160–68).

24. Ibid., pp. 180–82, 186–87, 190–91.

25. Ibid., p. 188. Clearly, this definition must be toned down to refer to actions that *normally* or *generally* bring substantial evil on the offender. For even society praising and rewarding an offender *could* result in substantial evil for him (e.g., by making him overconfident and careless or by making others jealous of him).

26. Cf. *ibid.*: "It is the threat of penalties which compels; and anything may be a penalty if it is an evil, dispensable at the will of those who have it at their disposal, and sufficient to weigh, in the deliberations of a possible offender, against the good to be achieved by the offence."

27. Ibid., pp. 189–90.

truth, and his definition of a common power, McNeilly draws the conclusion that the behavior of any collection of humans living under no common power would be uncontrolled, and since the members would be unable to predict and rely upon one another's behavior, they would be reduced to a state of war and despair.²⁸

I will mention but two of the many difficulties with this interpretation of Hobbes's state of war argument. First, it is not a necessary truth (and probably is not a contingent truth) that the threat of social penalties must be present if the behavior of a group of human individuals is to conform with social rules and be predictable. Habits of cooperative and prosocial behavior may be *learned* and internalized in such a way that no penalties imposed by society are necessary to control the behavior of most all individuals on most all occasions. In any case, it is surely not a *necessary* truth that human behavior cannot thus be controlled by education.²⁹

Second, even if McNeilly's conceptual argument were correct, it would not stand as an interpretation of *Hobbes's* argument. For McNeilly's argument, because of the way it defines a common power, could not play the central role in Hobbes's political philosophy that the state of war argument actually plays.

In *Leviathan*, Hobbes offers a hypothetical contract argument in support of the conclusion that political sovereigns have absolute and unlimited authority over their subjects, and that—save when their survival is immediately at stake—these subjects are morally obligated to obey all of their sovereign's commands. Hobbes, in effect, imagines rational self-interested parties in a state of nature choosing among three alternatives: (1) remaining fully in this state of nature; (2) grouping themselves together under a government with limited, or divided, power and authority; and (3) forming themselves into a civil society, or commonwealth, governed by a sovereign with unlimited power and authority. He contends, however, that the second alternative is basically illusory. Because of the constant danger of factionalism, civil war, and social disintegration in a group governed by a limited or divided power, such a form of social organization does not provide its members with sufficient security to really remove them from the state of nature.³⁰ Each is forced, in order to protect his long-term well-being, to anticipate—to use force and cunning to increase his power and thus his ability to come out in a favorable position when

28. *Ibid.*, pp. 186–87.

29. Two replies are available should McNeilly answer that such education must itself involve social penalties. First, a permanently childless society (e.g., one whose members have been rendered sterile by nuclear accident) could remain a peaceful human one, even if social norms were internalized and no future penalties had to be threatened. Second, it is not logically impossible that humans could internalize social norms by an educational process involving only *positive* reinforcement.

30. *Leviathan*, chap. 17, p. 155; chap. 18, pp. 169–70; chap. 19, p. 172; chap. 20, p. 195; chap. 30, p. 262. In pointing out that this is Hobbes's view, I am not endorsing it. See Sec. V below.

the inevitable civil strife breaks out into open warfare.³¹ The conflict of each person with every other thus goes on, perhaps in muted form, with trickery and deceit being more common forms of aggression than overt violence, but nevertheless leaving each person in a basically insecure, and thus unhappy, position.

Now as the formation of a government with limited or divided powers would not constitute a real escape from the state of nature, the choice of the parties, in Hobbes's hypothetical contract theory, effectively reduces to one between absolute sovereignty and the state of nature. The argument that the state of nature is a state of war of all against all supplies the *crucial* remaining premise that allows Hobbes to conclude that the parties would choose the absolute sovereign as the lesser evil.

This brief synopsis of what Hobbes is up to in *Leviathan*, shows that his main line of argument relies on a very *narrow* conception of what constitutes a civil society, or situation in which a common power exists, and a very *broad* conception of what constitutes a state of nature, or situation in which no common power exists. Hobbes takes the view that only the absolute sovereign is a genuine common power.³² Otherwise, he could not draw a verdict in favor of absolute sovereignty from the proposition that, in the absence of a common power, people are in a state of war. Now McNeilly's interpretation of the state of war argument gets things precisely backward on this point. Its extremely wide and non-Hobbesian conception of what constitutes a common power turns the argument into an argument that some form, *any* form, of social governance is better than pure and extreme anarchy. But, so interpreted, the argument implies nothing about the relative advantages of different forms of social governance, and thus could not support Hobbes's main political arguments and conclusions.

Thus, we may conclude that McNeilly's valiant attempt to make Hobbes's state of war argument conform to the method of mathematics fails. In seeking to understand and evaluate Hobbes's argument, we must return to the partly empirical interpretation offered in the last section.

III. IS ANTICIPATION MOST REASONABLE?

The premise concerning mutual awareness by the parties in the state of nature of the reasons for anticipation, which was supplied in Section I to close the gap in Hobbes's argument, is not a very plausible one. But

31. See *ibid.*, chap. 17, p. 154: "... If there be no power erected, or not great enough for our security, every man will—and may lawfully—rely on his own strength and art for caution against all other men" (italics mine).

32. See *ibid.*, pp. 157–58: "The *only way* to erect such a common power as may be able to defend them . . . is to confer all their power and strength upon one man, or upon one assembly of men that may reduce all their wills . . . unto one will. . . . This done the multitude so united is called a COMMONWEALTH. . . . And he that carries [their power and strength] is called SOVEREIGN" (italics mine). Cf. *ibid.* chap. 15, p. 131, and chap. 31, p. 343.

the main weakness in the argument occurs earlier. It is the transition, for which Hobbes offers no explicit justification, from the observation that persons in the state of nature must fear violence from others, to the claim that anticipation is the most reasonable way for such persons to attempt to protect themselves. Despite the fact that this crucial inference has escaped criticism in the literature, it is clear that it is fallacious. For in emphasizing the obvious advantages of anticipatory or preemptive violence, Hobbes utterly ignores three special dangers one would encounter if one were to engage in it. One would expose oneself to the defensive violence of those one attacked. Also, one would identify oneself to other potential anticipators as an especially dangerous person who should be eliminated at the earliest opportunity. Finally, if one succeeds in amassing substantial power by anticipation, one will make oneself a tempting target of glory seekers trying to show how powerful they are. Given these dangers of preemption, it is likely that in some state of nature situations, pursuing a strategy of lying low, staying alert, and fighting only when and if attacked will be more likely to promote one's interests than would anticipation.

Lying low is not, however, the most attractive alternative to anticipation. Joining with others in a defensive coalition promises to yield much greater benefits. Now, of course, Hobbes's own ultimate solution to the state of nature security problem is for the parties to leave the state of nature by forming a defensive coalition of a particular sort, a commonwealth under an absolute sovereign. But less extensive coalition arrangements still within the state of nature are imaginable, the simplest being an exchange, among a number of persons, of promises of mutual aid in case of attack. Admittedly, there are dangers involved in making and adhering to such a pact; one may lose one's life defending the life or property of one's partners. But its advantages—stronger defense against, and deterrence of, attacks on oneself and one's property—would seem to greatly outweigh the disadvantages, and make the coalition strategy clearly preferable to the highly dangerous anticipation strategy.

It is worth noting that to treat the possibility of the formation of defensive coalitions as an objection to Hobbes's argument requires rejecting McNeilly's interpretation of the argument. For, on McNeilly's view, a defense pact enforced by the threat of expelling noncompliers is not an alternative means of defense *within* the state of nature, but instead constitutes the erection of a common power by the parties to the pact, and thus an exit *from* the state of nature. If this were so, the attractiveness of defensive coalitions would not bear on the question of the most rational course of action in the state of nature, or on the conclusion that the state of nature is a state of war. Hobbes, though, clearly would question the correctness of the defensive coalition argument, rather than its relevance. He would, that is, deny that defensive coalitions consisting of mere promises of aid provide one with any security at all in the state of nature. Such promises are, in his terminology, covenants of mutual trust, and are not

binding, essentially because the party called on to perform first has no assurance that, if he performs, the second party will then do his part.³³ Thus, Hobbes would argue that it is unreasonable for you to risk your life to save your partner (or his land), since he may well flee when you or your property is attacked. Further, your coalition partner's awareness that *you* may reason in this way and not keep the pact in the future, makes it even more likely that he will not come to your aid.

This Hobbesian response is far from convincing, however, as it ignores a crucial motive that rational, forward-looking, self-interested parties would have for adhering to such a pact. In coming to the aid of an attacked partner, one encourages others to offer similar aid to one in the future. While, by not coming to his aid, one would place one's credibility and one's membership in the coalition in jeopardy. Thus, if you aid a coalition partner today, you can expect him to aid you tomorrow to increase the chances that you and others will aid him the day after tomorrow. Or, to put the point in more general terms, the fear of losing credibility and hence future opportunities for beneficial cooperation can suffice to motivate rational self-interested parties in the state of nature to keep their agreements with one another. This is a significant point about rational cooperation that Hobbes, to the detriment of his analysis, overlooked.³⁴

IV. ARE STATE OF NATURE DEFENSE PACTS VIABLE?

We would not be giving Hobbes's position a full hearing, however, if we failed to consider a significant objection against founding defensive coalitions in the state of nature on the parties' hopes or expectations of benefiting from future cooperation with their partners. This objection consists of a specific application of a general argument that is interesting in its own right. I shall first outline the general argument, then the specific version concerning defense pacts in the state of nature. While these arguments cannot be attributed to Hobbes, the latter is a development of his theme that defense pacts in the state of nature are in vain because no party can trust his self-interested fellows to come to his aid.

The general argument concerns the game Prisoner's Dilemma, and applies to all situations having the structure of this game. Prisoner's Dilemma consists of two players, each choosing independently and without knowledge of what the other player is doing, between a cooperative and

33. Ibid., chap. 14, pp. 124–25. I oversimplify Hobbes's view on covenants of mutual trust. The complications I ignore would, if anything, weaken the Hobbesian argument against defensive coalitions.

34. Hobbes did not entirely overlook it. In his reply to the fool (ibid., chap. 15, pp. 133–34), he claims fear of being left out of a specific future scheme of cooperation, the commonwealth, should motivate rational parties to comply with *some* agreements in the state of nature. Why did he not generalize the point? Apparently, he doubted one party could count on others being rational in this way. And perhaps he was vaguely aware of the problem discussed in Sec. IV below.

		Player 2 (Payoffs in upper right corner)	
		Cooperation	Noncooperation
Player 1	Cooperation	10 10	20 0
	Noncooperation	0 20	5 5

FIG. 1

a noncooperative move. The payoffs to each player are determined by the combination of their moves, and are such that each player orders the four possible outcomes, from most preferred to least preferred, as follows: (1) unilateral noncooperation, (2) mutual cooperation, (3) mutual noncooperation, and (4) unilateral cooperation. The following matrix in which the numerical entries represent payoffs to the players is an instance of Prisoner's Dilemma (see fig. 1).

Prisoner's Dilemma constitutes a "dilemma" in the following sense. Noncooperation seems to be the rational move for each player, for it is a *dominant* move. That is, whatever move the other player makes, one fares better if one does not cooperate than one would have fared if one had cooperated. (This is because unilateral noncooperation is preferred to mutual cooperation, and mutual noncooperation is preferred to unilateral cooperation.) Yet, oddly, if both players make the rational move, they both fare less well than if they had both played the irrational cooperative move. What this seems to show is that, in some situations, there is a genuine divergence between individually rational behavior and collectively rational behavior, and that methods for achieving coordination of parties' behavior in such situations can provide real benefits for all. For present purposes, however, all that we need assume is that non-cooperation is the rational, because dominant, move for an individual to make in a single play of Prisoner's Dilemma.

Suppose now that we *iterate* Prisoner's Dilemma, by supposing the parties know that they will be playing the same game against each other *n* times in succession. How would this influence the rational strategy of the game? Intuitively, it seems to open up the *possibility* of cooperative moves being rational. For in the iterated game, one has the opportunity to influence one's opponent's moves on later plays by one's moves on earlier plays. Thus, suppose you think playing a cooperative move on a given play will make it more likely your opponent will cooperate on later

plays. (Or, to put it somewhat differently, suppose you believe your opponent may “punish” a noncooperative move on your part, by later not cooperating when he otherwise would have cooperated.) Then it may be rational for you to make a cooperative move even though it is dominated on the play in question. And it seems that cooperation *can* make later cooperation by your opponent more probable, by posing an invitation to future cooperation, or by accepting such an invitation that he has offered by cooperating on earlier plays. And, in fact, when iterated Prisoner’s Dilemma is actually played in experiments; many pairs of players achieve a rewarding pattern of mutual cooperation on most plays.³⁵

Nevertheless, there is a powerful argument designed to show that sufficiently rational and knowledgeable players will make noncooperative moves on every play. The argument begins with the assumption that we have a game of iterated Prisoner’s Dilemma of some definite number of moves, n , to be played by two players who are rational and interested solely in maximizing their personal payoffs, and will remain so throughout the game. It is further assumed that this is all *common knowledge* among the players, that is, each knows it, knows the other knows it, knows the other knows he knows it, and so on.³⁶ Given the assumptions of self-interest and rationality, and the dominance of noncooperation on a single play, it follows that a player will cooperate on a given play only if he believes so doing may induce his opponent to cooperate on some later play or plays. Since each party, being rational, knows this, each party knows his opponent will not cooperate on the n th (i.e., last) play. For there are no later plays on which cooperation by one’s opponent could be induced by a cooperative move on the n th play. But then each party knows that a cooperative move on the $n-1$ st play could not induce future cooperation by his opponent, and being rational, he will not cooperate on the $n-1$ st play. But his opponent, knowing this, will have no reason to cooperate on the $n-2$ d play and will not so cooperate. Thus, by similar reasoning, we work our way back step-by-step (or by mathematical induction) to the very first play, and conclude that each party will make the noncooperative move on every play.

It is important for our purposes to note that this argument can be generalized in two ways. First, it can be extended to cover *multiparty* versions of Prisoner’s Dilemma. Let us say that a game with two possible moves on each play is an instance of multiparty Prisoner’s Dilemma if

35. See Anatol Rapoport and Albert Chammah, *Prisoner’s Dilemma* (Ann Arbor: University of Michigan Press, 1965), pp. 63–66. In *Anarchy and Cooperation* (London: John Wiley & Sons, 1976), Michael Taylor analyzes iterated Prisoner’s Dilemma games in detail to provide insight into a class of problems similar to the one discussed here. However, two of his assumptions—the infinite number of iterations and the discounting of future payoffs—are not appropriate for representing the security problem for rational parties in the state of nature.

36. See David Lewis, *Convention* (Cambridge, Mass.: Harvard University Press, 1969), pp. 52–58.

(a) one move (called the “noncooperative move”) is dominant for every player (i.e., each does better playing that move no matter what combination of moves the others make), and (b) universal play of the other (i.e., cooperative) move yields higher payoffs to every player than universal play of the dominant move. Assuming that each player knows the conditions of the game, that the others know all this, and so on, we can extend the above argument to apply to iterated multiparty Prisoner’s Dilemma. We simply note that each knows that *each* of his opponents will not cooperate on the n th play, and hence will have no reason to himself cooperate on the n -1st play. As this is known to each, each will not cooperate on the n -2d play, or the n -3d play, and so on, and we may conclude that all players will make the noncooperative move on all plays.

Second, we may generalize the argument to cover cases in which the players do not know the exact number of plays there will be, but do know that (a) some definite number n is an *upper bound* on the number of plays, and (b) how they play the game will have no influence on the number of plays there are. For assuming this is all common knowledge among the players, each knows that if there is an n th play, the others will all make the noncooperative move. Each therefore knows that if there is an n -1st play, each will have no reason to cooperate on that play. For each will know that this play will either turn out to be the last play, or it will be followed by an n th play on which the others will all make noncooperative moves. It follows that each knows his opponents will not cooperate on the n -1st or n th plays, if there are such, and by reasoning similar to the above, we work back to the conclusion that none will cooperate on any play.

Now this argument that rational players will never cooperate in bounded iterated multiparty Prisoner’s Dilemma can be applied to try to show that mutual aid pacts will never be kept by rational parties in the state of nature. Briefly stated, the argument as applied to aid pacts, goes as follows. Suppose that we have a number of people who make a mutual aid pact in the state of nature that calls on each to come to the aid of any of their number that are attacked. Each party is rational and purely self-interested, and will remain so as long as he lives and the pact is in effect. The parties will, between them, suffer at most a definite number of attacks, n ,³⁷ with the actual number determined by the propensities of external attackers and not in any way by their own behavior. We suppose that coming to another’s aid is dangerous, and that therefore each party will keep his promise to aid an attacked member only if he expects this will make it more likely (than if he did not offer aid) that the present victim and/or other members will aid him if and when he is the victim of future attacks. Finally, we assume that all of this is common knowledge among the pact members.

Given these assumptions, it follows that each knows that if an n th attack occurs, the partners of the victim will not come to his aid, there

37. This is not an unrealistic assumption, as n may be chosen as large as we wish.

being, by hypothesis, no future occasions on which they might be victims, and thus benefit from the aid of others. But since each knows the others will not help him if he is the victim of the n th attack, each will have no reason to offer aid on the n -1st attack (if there is one). For the only possible reasons for a self-interested party helping—to decrease the number of future attacks or to encourage reciprocal help later—have been ruled out. Each party will thus realize that none will help another on either the n -1st or the n th attack (if there are such attacks). But this removes all possible reasons for any to help others on the n -2d attack should it occur. And by similar reasoning, we work our way back to the n -3d, n -4th, and eventually the first attack, concluding that no party to the pact has any reason to help the victim of the first or any subsequent attack, and that each knows that no other member will ever help him if he is attacked.

The conclusion of the argument, the hopelessness of aid pacts in the state of nature, is counterintuitive, even paradoxical. It seems that truly rational parties so situated would at least try aiding their fellows a few times in hope of creating a practice of beneficial reciprocal aid. Nevertheless, I am inclined to think that the argument, or some more precisely stated variant of it, is valid. The implausible conclusion derives not from fallacious reasoning, but from other sources: the argument's extremely strong assumptions and, possibly, deep problems with the concept of practical rationality as it is applied to situations in which agents reason reciprocally about one another's reasoning. In the present context, we need consider only the former source of implausibility.

For the argument to go through, the parties must be assumed rational in a sense that guarantees they will replicate the line of reasoning contained in the argument itself. While this assumption may be only somewhat unrealistic, the assumption that each knows each of the others is thus rational, that each knows each of the others knows all are thus rational, and so on, is wildly implausible. Furthermore, the kind of knowledge of the circumstances and the other parties that is required for the argument to work is "certain" knowledge, that is, true beliefs about whose truth the believers have not the slightest doubts. This is because the rational parties' chains of reasoning invoke a large number of (relatively) independent premises, and their degrees of belief in the conclusion of the argument at each stage will not (since they are rational) exceed their degrees of belief in the conjunction of the premises used up to that point.³⁸ So, if their beginning degrees of belief in the premises about the risks of aiding others, the rationality of their partners, and so on, were significantly less than "certainty," they would not conclude that their partners surely will not cooperate. And they might rationally attempt cooperation on common sense grounds.

38. I borrow this point from Tyler Burge who applies it, in a different context, in "Reasoning about Reasoning," *Philosophia* 8 (December 1978): 651–56.

In addition, the assumption that the number of attacks by outsiders is independent of the behavior of the coalition members is almost certainly mistaken. The more the parties band together to successfully repel early attacks on members, the less likely they are to be attacked in the future, other things being equal. Common defense acts as a deterrent against potential aggressors. Since it is to the advantage of each partner to minimize the total number of attacks (as he may be among the victims), each thus has an additional self-interested reason for coming to the defense of attacked coalition partners.

We must conclude, then, that the iterated Prisoner's Dilemma argument for the futility of defense pacts fails to close the gap in Hobbes's argument that the state of nature is a state of war, because it requires quite unrealistic assumptions about the people in the state of nature.

V. GROUPS, NATIONS, AND SECURITY

A supporter of Hobbes might concede the possibility of coalitions in the state of nature, yet contend that the substance of Hobbes's hypothetical contract argument for unlimited and undivided sovereign power remains intact. For Hobbes claims that the logic of anticipation applies among *groups* as well as individuals in the state of nature. Thus, if persons are joined together in families (or other small groups), the destructive war of all individuals against all others will simply be replaced by a war of all groups against all others, that has similar disastrous consequences.³⁹ According to Hobbes, the only viable solution to the insecurity generated by this war of all groups is the formation of a commonwealth—a political entity governed by a sovereign with undivided and unlimited powers.

To evaluate this new variation on the war of all argument, we must examine the reasons Hobbes offers (in chap. 17 of *Leviathan*) for supposing that no social arrangement short of a commonwealth, as he defines it, can provide its members with sufficient security to eliminate the need to anticipate. In doing so, it is important to keep separate arguments related to two distinct properties of groups, their size and the concentration of power within them.⁴⁰ For, as we shall see, some of Hobbes's most plausible remarks concern group size and have only an indirect bearing on his conclusions about the desirability of the concentration of power.

Consider first the question of size. Hobbes observes that security rests on deterrence, which in turn rests on one's group being large enough so that potential attackers cannot be reasonably sure of victory. Contending that a relatively small advantage in numbers is a reliable sign of victory in conflicts between small groups, he concludes that small groups cannot deter attack and provide their members with security. But will this not depend upon the empirical details of the case, in particular

39. At places in *Leviathan* (see chap. 13, p. 114; chap. 17, p. 154), the war of all is portrayed as being among families rather than individuals.

40. As Hobbes opposes both on the same grounds, I treat the limitation and division of state power together under the single heading of "concentration" of power.

on whether there are larger groups in the vicinity? Might not small, but nearly equal-size, groups provide sufficient security for their various members in state of nature situations? Perhaps, but Hobbes could plausibly argue that for reasons of both defense and conquest, people in such circumstances would have strong incentives to increase the size of their groups, for example, by merging one group with another. Hence, an equilibrium among small groups in the state of nature would be highly unstable, and would not provide protection for long.

This line of argument raises an interesting question that Hobbes never addresses. Why should those in the state of nature not opt for a grouping of all persons, worldwide, or at least try and form a group containing the majority of mankind? Why would they settle for a group smaller than this, when doing so would provide others with the incentive and opportunity to form a larger group and defeat them? There are two sorts of reasons. First, for large groups, being the largest is not always necessary for deterrence and defense. So many variables interact to determine victory in conflicts among large groups, that even a substantial advantage in numbers cannot begin to assure one group victory over another. Also, some geographical barriers (e.g., oceans, mountains) will reliably deter a larger group from attacking smaller ones. Second, there are disadvantages associated with increasing group size. It is difficult to coordinate the actions of large numbers of people spread over large distances. The larger the group, the greater the potential for internal conflict, as there is likely to be greater variation in beliefs and values among the members, and less group cohesion based on personal attachments. Given these, and other, inefficiencies of scale, coupled with the fact that deterrence capabilities are not primarily a function of size for large groups, we would not expect rational inhabitants of the state of nature to seek to increase the size of their groups without limit. Rather than the grand (or a majority) coalition of all mankind forming, we would expect rational parties to gather into large groups, with the exact sizes varying in accordance with the particular circumstances.⁴¹

Suppose the parties in the state of nature coalesced into a number of large groups for security reasons. Would the state of war argument not apply to the relations among these groups as it does to individuals and small groups? Hobbes allowed that it would, claiming that the nations of the world are in a constant state of war of each against the others. But the consequences of war (in Hobbes's sense) among nations are not so bleak as those of war between individuals and small groups. For even while known to be willing to fight each other, nations are able to "uphold . . . the industry of their subjects."⁴² The import of this cryptic remark may (charitably) be interpreted as follows.

41. Technological advances tend to increase the optimal size of defensive groups. For they make transportation and communication over long distances, and the organization and direction of large numbers of persons, faster and more efficient.

42. *Leviathan*, chap. 13, p. 115.

Nations are large enough and orderly enough to secure a man's life and property against those he is likely to come in direct contact with, and to provide him with enough reliable "partners" to make his productive activities worthwhile. Further, the state of war between his nation and others constitutes a much smaller threat to his life than would a war of all individuals (or small groups). For because of the problems of organizing large groups for combat, the uncertainty of the outcome in battles between states, the geographical barriers between states, and the relatively small number of agents on the international scene, actual fighting between states is relatively infrequent, and directly involves only a small segment of a warring nation's population when it does occur. Hence, there is much less fighting and killing per capita in the war of all nations than there would be in a war of all individuals (or small groups).

This argument, that nations can provide their inhabitants with a tolerable degree of security, depends to a considerable extent on the likelihood and the effects of war being constrained by (a) the difficulties of mobilizing and of overcoming geographical barriers, and (b) the fact that there are only a small number of international agents whose calculations (or miscalculations) could produce large-scale fighting. This becomes apparent when one imagines an international situation in which these constraints are not present.

Consider what is unfortunately a possible state of the real world eighty years from now. A hundred or so nations are armed with nuclear weapons and long-range missiles or bombers. Enormous destructive power is thus continually mobilized, relatively unconstrained by distance and geographical barriers, and may be set loose by any of a hundred or so government heads (or cabinets, or military councils). These nations, like the individuals in Hobbes's state of nature, are competing for scarce natural resources and for international reputation. Given their nuclear arsenals, they are equals in the sense Hobbes stresses: each can kill any other, unilaterally or with the help of confederates. The uncertainty of victory—in the modern form of likelihood of mutual annihilation—would constitute an enormously powerful constraint on any nation attacking another under these circumstances. But with the other aforementioned constraints absent, a citizen of this multinuclear world might rightly feel far from secure. Given the grave conflicts of interest between nations, the apparent advantages of striking first in a nuclear conflict, and the large number of actors whose (mis)calculations could produce an attack, sensible individuals and governments would greatly fear the occurrence of a nuclear attack that could set off a spiral of international nuclear violence.

Two plausible strategies for dealing with the dangers of this sort of international situation are suggested by our earlier discussion of Hobbes's war of all argument. Nations might pursue the defensive coalition strategy by forming alliances, thus attempting to convince even the most irrational adversaries that attack would surely be suicidal, and at the same time

reducing the number of independent actors who could start a nuclear war. Or they might follow the strategy of forming a sovereign world government. What would such a world government be like? It might be argued that, to be effective, a world government would need a monopoly on nuclear weapons. But it hardly seems that it would have to have unlimited and undivided power over all the people of the world. Authority over economic and internal security matters, for example, might be left in the hands of national governments. This observation brings us back to the second property of groups that Hobbes discusses, the degree to which power is concentrated within them.

Questions of power concentration and group size are connected, in that the larger a group is, the more it will need specialized organizations, procedures, and functionaries to provide security effectively and efficiently. Thus, Hobbes points out that a large group in which each individual acts in accordance with his own desires and opinions can provide little security. It will be ineffective against external enemies because its members will not agree on and coordinate their defensive efforts. And, because they have conflicting interests, group members will fight among themselves when threats from outside the group are not imminent.⁴³

Having already eliminated small groups as an effective form of defense, Hobbes draws a significant political conclusion from these observations. He infers that people can obtain real security only under an absolute sovereign, that is, a single individual or assembly with unlimited authority to act for all members of the group. But this is a non sequitur. The most that follows from the dangers of unbridled individualism in large groups is that *some* concentration of authority in matters of external and internal defense is needed. That is, there must be some arrangement for the performance of police and military functions, and this will inevitably lead to significant inequalities in authority and power among the members of the group in question. That this must be carried to the point of investing *unlimited* authority and power in a *single* body is, however, a more extreme proposal that requires independent grounding. And Hobbes offers none, save for the bare assertion that the limitation or division of sovereign power inevitably leads to civil war, and that civil war will never occur in the absence of such limitation or division.⁴⁴

Now it cannot be denied that limits on, or divisions in, the authority of the governing apparatus of a nation can lead to paralysis in the face of external threats and to damaging internal struggles. But they need not. Whether they will depends on the nature of the divisions or limits, the general historical-political situation, and a variety of other facts about the nation and its environment. In claiming otherwise, Hobbes presents a greatly oversimplified generalization (apparently based on his view of the English Civil War) as a description of a deep and enduring fact about human societies.

43. Ibid., chap. 17, p. 155.

44. See, e.g., *ibid.*, chap. 18, p. 168.

In addition, he systematically overlooks or downplays the imperfections of the absolute sovereignty solution to the problem of individual security. He does not mention that an unrestrained sovereign may involve a nation in disastrous wars that a more limited government would refrain from undertaking. He de-emphasizes the significance of the loss of individual liberty that citizens must endure as the usual price of a system of government with a greater (rather than a lesser) concentration of power. And, most important of all, he fails to notice that even unlimited and undivided sovereign authority is no guarantee against internal strife. It cannot be a guarantee, because the physical powers of a monarch or a sovereign assembly are never great enough, in themselves, to deter violent opposition. Thus, all sovereigns depend upon the cooperation of others for the effective exercise of their authority, for their power.⁴⁵ So serious civil strife—in the form of military coups, local rebellions, civil wars involving competing factions within a sovereign assembly or the royal family or the military—can and does occur even under absolute sovereigns. Life within Leviathan is not so tranquil as Hobbes would have us suppose.

Let us summarize the implications of our discussion of security within and between groups. We could interpret Hobbes's analysis of security problems in the state of nature as an insightful and rather plausible argument against anarchy and in support of the state. The first stage in the argument traces the logic of anticipation in an anarchical situation. Its conclusion is that anarchy leads inevitably to an insecure and poor life, and that people must therefore form defensive groups to have a decent life. The second stage of the argument establishes that only large groups are safe from external aggression. But to effectively provide security to a large group, military and law-enforcement organizations, procedures, and specialists are needed. Thus, the third and final stage of the argument establishes the need for the basic apparatus of the state.⁴⁶

This revised Hobbesian argument falls short of the conclusion Hobbes wanted: the justifiability of the *absolute* state. But this is as it should be. For Hobbes reaches that conclusion only by setting up a false dichotomy between (a) each individual fending for himself and (b) people reliably protected by unlimited power concentrated in the hands of a single body. He overlooks all security arrangements in-between. Or, rather, he assimilates them to the first side of the above dichotomy, based on his implausible assertion that civil order will break down if, and only if, state power is not fully concentrated. The above three-stage reconstruction of Hobbes's

45. Often, one's main reason for cooperating with the sovereign is the expectation that others will cooperate because they expect others to cooperate. Hence, the glue that holds the state together is much like that which holds together the defensive coalitions discussed in Sec. III above. I develop this point in my "Rule by Fear," *Noûs* (in press).

46. The Hobbesian argument against anarchy is not a priori, as McNeilly supposes, but empirical. In special, but relatively unlikely, circumstances (e.g., a rich, geographically isolated environment with low population density), going it alone or in small groups will provide sufficient security.

argument leaves out these false moves that he made in order to reach the political conclusions he desired.

VI. THE SIGNIFICANCE OF HOBBS'S ARGUMENT

I have suggested that Hobbes's discussion of the problem of individual security contains two basic flaws: (a) it overlooks the possibility of rational present cooperation based on the expectation of future cooperation, and (b) it oversimplifies and inaccurately portrays the relationship between security and the concentration of power within a group. Yet, when adjustments are made in Hobbes's argument to remedy these flaws, we are left with a powerful and plausible justification of the state. And the initial stage in this justification, the argument that the state of nature is a state of war of each individual against every other, contains two elements of substantial and lasting significance.

The first is the focus on *anticipatory* violence as the prime danger of an anarchical situation. Anticipatory violence plays a special role in the argument because such violence is escalatory in a way that competitive and glory-seeking violence need not be. Violence from the latter two sources alone might stay within tolerable limits, but once substantial anticipatory violence *starts*, it makes further anticipation more reasonable as a means of gaining the advantage on others who may reason similarly and anticipate. Thus, belief among the parties that anticipation is, or may be, the rational course of action, feeds an escalatory spiral of violence, and becomes a self-fulfilling prophecy.

Now, in the course of emphasizing anticipatory violence as the source of the war of all, Hobbes claims that even moderate persons, who are not evil and grasping, are forced into violence to preserve themselves. This observation that the dangers of violence can arise even among virtuous parties, provided they are sufficiently vulnerable to and distrustful of one another, is an important one having obvious implications concerning international, as well as domestic, order.⁴⁷ It also makes clear that law enforcement has at least a double function: to discourage evil and aggressive persons from violence and fraud by threatening them with sanctions, and to provide all with enough security that they will know that they need not engage in preventive violence and fraud to protect themselves.

A second contribution of Hobbes's analysis of the state of nature as a state of war is the introduction of an idea noted above in our discussion of Prisoner's Dilemma. Namely, that in certain important situations, there is a divergence between individual and collective rationality. That is, if each individual performs the act that is, in fact, in his own *individual* best interest, all—ironically—end up worse off than if they had all acted otherwise. Hobbes, in effect, though not in so many words, points out

47. The Surprise Attack Problem is clearly a descendant of this point. For an elegant recent treatment, see Thomas Schelling, *The Strategy of Conflict* (New York: Oxford University Press, 1960), chap. 9.

this problem with respect to attack behavior and promise keeping in the state of nature. Each would be better-off if they all kept their agreements and refrained from attacking one another. But there are apparent unilateral advantages to be gained by violating agreements and by conquest, and one will suffer substantial disadvantages if others do these things and one does not. As a result, agreements are in vain and anticipatory attack is the most reasonable individual strategy. Further, Hobbes proposes a plausible solution to the problem of diverging individual and collective rationality: the creation of a power to impose sanctions that would alter the parties' payoffs so as to synchronize individual and collective rationality.

Now if my criticisms of Hobbes's argument that the state of nature is a state of war are correct, the problem of security in an anarchical situation may not be a genuine instance of diverging individual and collective rationality. It may be *both* individually and collectively rational for the parties to form defensive coalitions by making and keeping mutual aid pacts. But this in no way detracts from the significance of Hobbes's contribution in bringing forth, and proposing a solution for, the general problem of divergent individual and collective rationality. In this, and in his discussion of the anticipation question, Hobbes took critical early steps toward the identification and clarification of central issues in the theory of rational conflict and cooperation. To the considerable extent that such theory contributes to our understanding of moral and political phenomena, we are in debt to Hobbes and his argument that the state of nature is a state of war.